

Applicant: John C. Nardi
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REMARKS

Claims 1-13 and 15-21 remain in the application. Applicant respectfully requests re-examination and reconsideration of the present application.

In the Decision on Appeal in the above-identified application, the Board of Patent Appeals and Interferences affirmed the Examiner's rejection of claims 1-13 and 15-21 under 35 USC § 103(a) as being unpatentable over Mototani et al. (U.S. Patent No. 5,482,798). It was the Board's opinion that the disclosure of Mototani enjoys a statutory presumption of validity that has not been rebutted by any objective evidence of record. In its Decision, the Board further stated that the Applicant had not presented clear and convincing evidence that one of ordinary skill in the art would not have been able to make the expanded graphite material of Mototani from the information provided in Mototani and the knowledge in the art at the time of the invention without undue experimentation. The Board determined that the evidence of obviousness, on balance, outweighs the evidence of nonobviousness.

Applicant submits herewith a Declaration under 37 CFR § 1.132 containing new evidence in support of patentability. Applicant believes that this new evidence shows that the invention as defined by claims 1-13 and 15-21 is not obvious over Mototani, for the reasons below.

The present invention generally relates to an electrochemical cell employing an active material and an enhanced electrically conductive carbon material in the positive electrode. The carbon material includes expanded graphite particles having a kerosene absorption value in the range of 2.2 to 3.5 ml/g. It should be appreciated that the expanded graphite particles exhibit certain characteristics which Applicant has discovered result in a conductive matrix consuming a small volume and having reduced polarization so as to achieve enhanced electrochemical performance. Accordingly, enhanced cell performance is achieved by employing a positive electrode containing the selected expanded graphite particles, which exhibit a kerosene absorption value within a specified range in accordance with the teachings of the present invention.

The Examiner's rejection was based on a finding that Mototani and the Applicant form expanded graphite using similar processes (by introducing sulfuric acid into graphite and then

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rapidly heating the graphite to about 1000°C), the materials produced will be similar and thus have similar physical properties, including kerosene absorption values.

Mototani discloses an alkaline battery having a positive electrode active material comprising manganese dioxide and electroconductive carbon material. The electroconductive carbon material comprises expanded graphite particles preferably having an average particle size in the range of 0.5 to 15.0 micrometers, and more preferably 0.5 to 6.0 micrometers. The amount of expanded graphite particles used in Mototani is 2 to 8 percent by weight, based on the solids in the positive electrode material. Mototani further discloses an example of a battery having electroconductive carbon material in the range of 0.5 to 30.0 micrometers and explains that batteries having expanded graphite with an average particle size of 30 micrometers were little different from those with unexpanded graphite of the same size. Mototani (col. 3, lines 45-51) briefly discloses that expanded graphite particles "had been prepared by introducing sulfuric acid into between interlayers of the artificial graphite used as a starting material and heating rapidly the graphite at a temperature of 800° to 1000°C to expand greatly spaces between the interlayers of the graphite in the direction perpendicular to the plane of interlayer and then crushing the resultant expanded graphite."

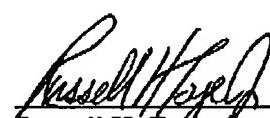
In the Declaration being submitted herewith, Applicant presents evidence showing that the "Sample D" material in the Declaration filed on October 19, 2000, was a commercially available expanded graphite material made according to the general method disclosed in Mototani. The kerosene absorption value of the Sample D material was 1.98 ml/g, well outside the range of 2.2 to 3.5 ml/g recited in claim 1 of the present application. The Declaration submitted herewith sets forth an example believed to be representative of the expanded graphite of Mototani showing that expanded graphite made according to the teachings of Mototani does not inherently possess a kerosene absorption value within the claimed range.

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In view of the above remarks, it is submitted that claims 1-13 and 15-21 are not obvious over Mototani et al. and are in condition for allowance. Withdrawal of the rejection and allowance of claims 1-13 and 15-21 is requested.

Respectfully submitted,

5/2/03
Date



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